Software Requirements Specification

For

Escort 2 Women

Version 1.0 approved

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1. Introduction

If we are to fight discrimination and injustice against women we must start from the home, for if a women cannot be safe in her own house then she cannot be expected to feel safe anywhere. A recent article in India claimed that India is the fourth most dangerous place for women's to take public transport and the second worst for safety while travelling at night.

This is the small contribution taken which will provide safety android app for women. An Escort 2 woman is an android application which helps women/teenagers to protect themselves by using a Smartphone. It lets your family and friends know your current via GPS tracker if your android device is connected to the network.

1.1 Purpose

An Escort 2 woman is a safe and secure environment that is reliable and accessible to a wide user base. The project is developed based on the Android Operating system. So, it works only on Android based mobile device with version Jelly bean and version number 4.2 and above. The main purpose of the project is to provide safety to the women. An Escort 2 woman is an android application which helps women/teenagers to protect themselves by using a Smartphone. It lets your family and friends know your current location via GPS tracker and receive an alert message, if your android device is connected to the network.

1.2 Project Scope

The project IDE is Android studio and is multiplatform target device. This software works on different platforms with minimum hardware and software requirements as stated.

We describe what features are in the scope of the software and what are not in the scope of the software to be developed.

In Scope:

1. It is a daemon application.

2. Information regarding the registered contacts and so on.

3. Giving alerts when a panic button is initiated.

4. The location of the victim and an alert message is sent to registered contacts.

5. User authentication.

6. Also provides a module for changing registered contacts.

Out Scope:

1. Never sends an alert message without initiating a panic button.

2. User cannot register with the victim without proper authentication.

1.3 References

https://developer.android.com/studio/intro/index.html

https://developer.android.com/reference/packages.html

https://www.gadgetsnow.com/featured/10-best-women-safety-apps/articleshow/57535322.cms

http://www.aiktcdspace.org:8080/jspui/handle/123456789/2053

https://www.startxconsulting.com

https://msdn.microsoft.com/en-in/library/ee658094.aspx

2. Overall Description

2.1 Product Perspective

This project idea is a new method and is not any extension to any existing system. This product is developed in view of availability of different devices as per the requirements given. This product is mainly used for women/teenagers for their safety.

The mobile application will need to communicate to a GPS application within the mobile phone. The GPS will provide the mobile application with locations of the user.

2.2 Product Features

The major features in this project include

- GPS navigation system with location tracking.
- Panic button is provided on the outline of the mobile.
- An alert message is sent on initiating the panic button.
- Message is sent to registered contact for authentication.

2.3 User Classes and Characteristics

The major classes include

- GPS
- SMS
- Panic Button
- Authentication

Each module describes a class and respective functionality.

There are two types of users for this application: Woman and their respective registered contact. Each of these two types of users has different use of the system so each of them has their own requirements.

Women are the basic users of this application. They make use of monitoring app rather than tracking module. This application is used to protect themselves from crimes like eve-teasing, rape etc. By using panic button they can send an alert message and current location to the selected contacts.

Registered contact does not use monitoring app, instead they make use of tracking app. Initially they need to register a mobile number of the user whom they want to track. By using this module they can track the location of the registered contact at any time, when connected to internet.

2.4 Operating Environment

Software:

- Android studio 2.1.3
- SQLite

Hardware:

- Any android based mobile device with 4.2 and above versions.

2.5 Design and Implementation Constraints

The end user is responsible to follow all the necessary steps in order to bring out the best functional result. Turning off, lack of internet facility may result in imbalanced functionality.

2.6 User Documentation

Preparing online manual support for users on using the application.Along with the software, workflow will be delivered which instructs the user from the very start position and it will guide the user to achieve his requirement .A document which has explanation of all the technical terms and roles of an individual will also be given.

2.7 Assumptions and Dependencies

1. Full working dependent on the availability of internet connection.
2. The people should be aware of English language.
3. Should be aware of technical terms.

3. System Features

3.1 Installation

3.1.1   Description and Priority

This feature describes about the installation of the application. This feature has high priority because this is the major step inorder to make use of the application.

3.1.2   Stimulus/Response Sequences

1. User must contain a Smartphone with Android OS.

2. User must initiate play store option.

3. Select Escort 2 women app available in the play store.

4. Download and install the app.

3.1.3   Functional Requirements

3.1.3.1 Introduction:

In order to make use of this application the user needs to install this app in their Smartphone with Android OS.

3.1.3.2 Input:

The user has to search the play store for the Escort 2 women app, download and install the app.

3.1.3.3 Processing:

- User should initiate install button.
- The app needs access to the WIFI connection, GPS, Contacts etc.
- User should initiate accept button.

3.1.3.4 Output:

If there is internet connection the app is downloaded with a message download completed, otherwise displays an error message download incomplete.

3.2 Contacts Selection

3.2.1 Description and Priority

This feature describes about the selection of contacts after installation. This feature has high priority because this is the base of the project.

3.2.2 Stimulus/Response Sequences

1. After installation it asks for the registration of contacts.

2. User should select any 4 contacts from the list of contacts available in his/her mobile.

3.2.3 Functional Requirements

3.2.3.1 Introduction:

In order to start this application initially the user needs to select any four contacts of the near and dear.

3.2.3.2 Input:

This application takes the input from only the list of contacts available in the mobile.

3.2.3.3 Processing:

- User should initiate select contact button.
- Then it redirects to the contacts page.
- User should select the required contact.

3.2.3.4 Output:

It redirects to the next module if the selection of contacts is successful.

3.3 Change Contacts

3.3.1 Description and Priority

This feature describes about the changing the selected contacts.

3.3.2　Stimulus/Response Sequences

1. If the user wants to change the registered contacts then the user must initiate change button.

2. User should initiate the change button beside the contact he wants to change.

3. Then it will redirect to the contacts pagein user mobile.

3.3.3　Functional Requirements

3.3.3.1 Introduction:

If the user wishes to change the initially registered contacts then he must initiate the change button.

3.3.3.2 Input:

This application takes the input from only the list of contacts available in the mobile.

3.3.3.3 Processing:

- User should initiate change button beside the contact he want to change.
- Then it redirects to the contacts page.
- User should select the required contact.

3.3.3.4 Output:

It replaces the already existing contact with the new contact selected.

3.4 Sending SMS

3.4.1　Description and Priority

This feature describes about sending a default message to the selected contacts whenever a panic button is pressed.

3.4.2　Stimulus/Response Sequences

1. As soon as user initiates panic button it sends a default message to the selected contacts.

2. A default message may be like "I am in danger, please save me".

3.4.3   Functional Requirements

3.4.3.1 Introduction:

In order to send an SMS to the selected contacts, when the victim is in danger.

3.4.3.2 Input:

Victim must initiate panic button continuously for 4 times inorder to send an SMS.

3.4.3.3 Processing:

- Victim should be aware that he/she is in danger.
- Then victim should initiate the panic button.
- Then it sends a default message to the selected contacts.
- A default message be like "I am in danger, please help me".

3.4.3.4 Output:

A message is sent to the registered contacts.

3.5 Sending Location

3.5.1   Description and Priority

This feature describes about sending location to the selected contacts whenever a panic button is pressed.

3.5.2   Stimulus/Response Sequences

1. As soon as user initiates panic button it sends current location to the selected contacts.

2. Location is sent in the form of latitudinal and longitudinal values.

3.5.3   Functional Requirements

3.5.3.1 Introduction:

In order to send location to the selected contacts,when the victim is in danger.

3.5.3.2 Input:

Victim must initiate panic button continuously for 4 times inorder to send the current location.

3.5.3.3 Processing:

- Victim should be aware that he/she is in danger.
- Then victim should initiate the panic button.
- Then it sends current location to the selected contacts.
- Location is sent in the form of latitudinal and longitudinal values.

3.5.3.4 Output:

Current location of the victim is send to the selected contacts.

3.6 Panic Button

3.6.1   Description and Priority

This feature is used to send current location and default message to the registered contacts.

3.6.2   Stimulus/Response Sequences

1. As soon as user initiates panic button it sends current location and default message to the selected contacts.

2. Location is sent in the form of latitudinal and longitudinal values.

3. A default message is sent to the selected contacts.

3.6.3   Functional Requirements

3.6.3.1 Introduction:

Panic button is used to send location and message to the selected contacts.

3.6.3.2 Input:

Victim must initiate panic button continuously for 4 times.

3.6.3.3 Processing:

- Victim should be aware that he/she is in danger.
- Then victim should initiate the panic button.
- Then it sends current location to the selected contacts.
- It also sends an alert message.
- Location is sent in the form of latitudinal and longitudinal values.

3.6.3.4 Output:

Current location of the victim is send to the selected contacts.

3.7 Authentication of User

3.7.1 Description and Priority

This feature describes about sending an authentication message to the selected contact before registration.

3.7.2 Stimulus/Response Sequences

As soon as user wants to register with the victim an authentication message is sent.

3.7.3 Functional Requirements

3.7.3.1 Introduction:

In order to provide authentication to the victim.

3.7.3.2 Input:

A message is sent to the selected contact.

3.7.3.3 Processing:

- User should select a mobile number.
- Then an authentication message is sent to the selected contact.
- Victim should either accept the message or decline it.

- If the victim accepts the message, user can trace the victim.

3.7.3.4 Output:

Successful registration of the user with the victim.

4. External Interface Requirements

4.1 User Interfaces

User interfaces are designed according to the given functional requirement. Each screen describes a separate module in the given functionality.

1. After installation user has to select the module (monitoring/ tracing).
2. In monitoring module, initially victim has to register with 4 contacts.
3. A panic button is provided on the side of the mobile (power button/ volume buttons).
4. Victim should manually turn on GPS and mobile data.
5. If the victim is in danger then she should press panic button continuously for 4 times.
6. In tracing module, user should register with single contact.
7. After proper authentication, user can trace the victim.

4.2 Hardware Interfaces

No external hardware is involved other than android based mobile phone.

4.3 Software Interfaces

This is to be developed under the Android studio 2.1.3 tool. The communication between the database and user is through SQLite.

4.4 Communications Interfaces

It involves accessing GPS services using location manager to get the current address of the user. This helps in sending the location details to the near and dear suggested by the app user.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The system must be interactive and the delays involved must be less .So in every action-response of the system, there are no immediate delays. In case of changing the module and saving the settings or sessions there is delay much below 2 seconds.

5.2 Safety Requirements

Now-a-days safety has become the primary goal in the world. GPS location must be transmitted safely only to the intended users.

5.3 Security Requirements

The main security concern is for victim. Victim should authenticate while sharing their location with the appropriate user. Hence, security is provided from unwanted users to trace the location of victim.

5.4 Software Quality Attributes

5.4.1 Availability

If the internet service gets disrupted while sending location and SMS to the user, the information can be sent again only to the particular user.

5.4.2 Usability

As the system is easy to handle and navigates in the most expected way with no delays. In that case the system program reacts accordingly and transverses quickly between its states.

5.4.3 Correctness

This application gives correct and accurate location to the registered contacts. In the same way is also sends the location and alert message to the correct contact. It provides 100% accuracy.

5.4.4 Scalability

Even though the number of users has increased the performance of the system does not decreases. The present system has the ability to handle increase in load without affecting the performance of the system.

Appendix A: Glossary

Definitions, Acronyms, Abbreviations

SMS- Short Message Service

GPS- Global Positioning System

Authentication- The process or action of verifying the identity of a user or process.

Panic- Sudden uncontrollable fear or anxiety, often causing wildly unthinking behavior.
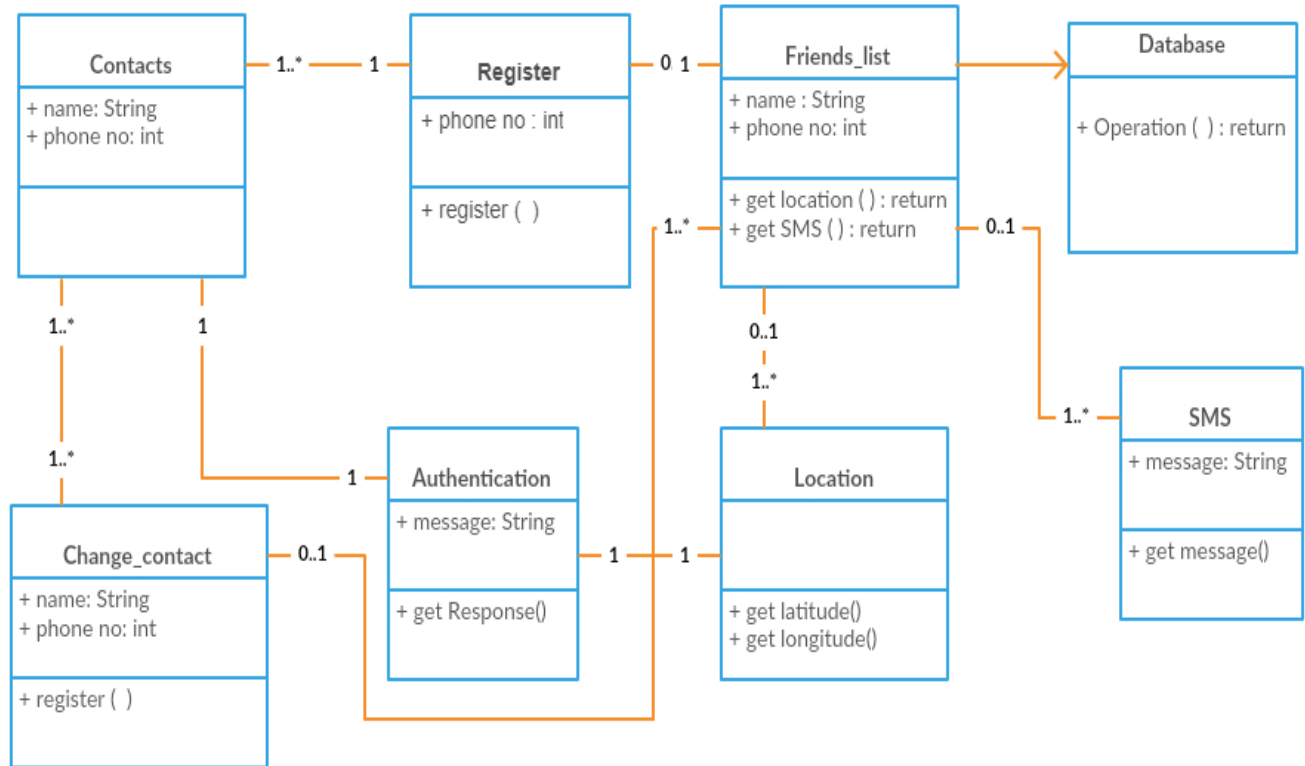
Appendix B: Analysis Models
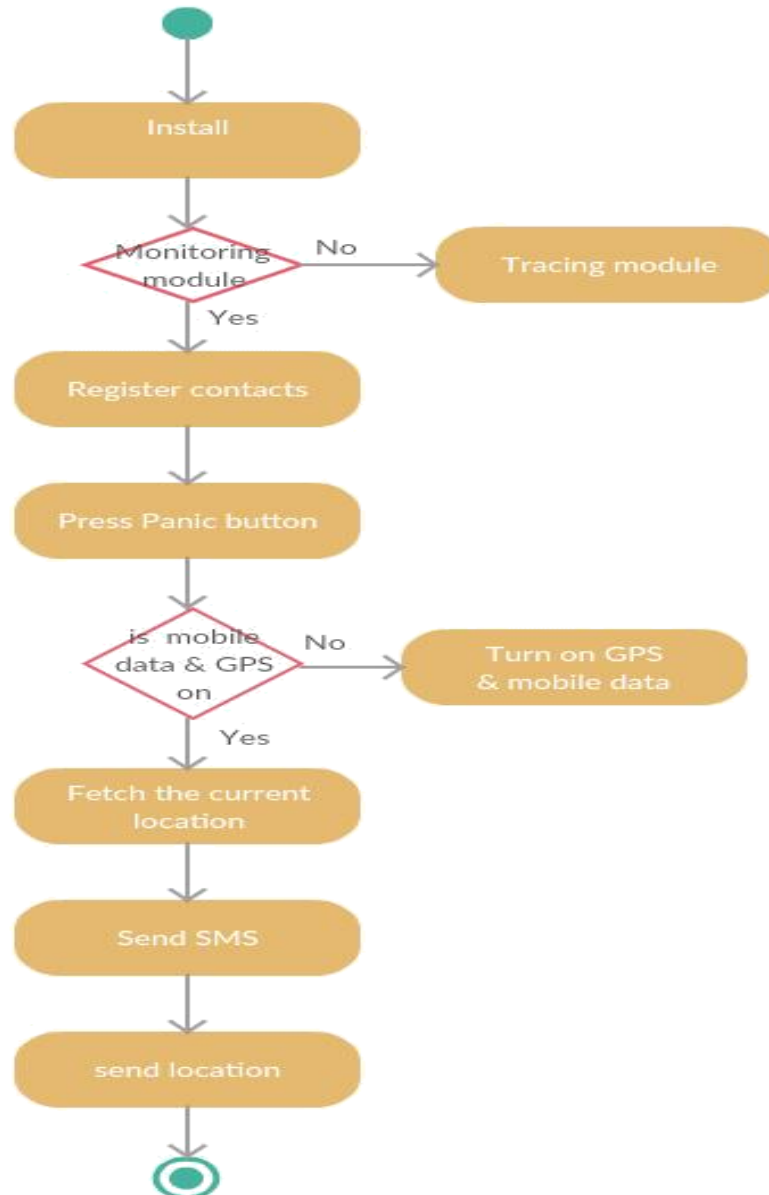
Use Case Diagram

Here the user and victim must install the app and the registered contact must also install the app. The user and victim have to register the contact. If any changes were there in the contacts both user And victim can change the contacts. If anyone adds the victims contacts and authentication message is sent to the user. In case the victim is in dangerous condition he/she can send an SMS to the registered contact by pressing the panic button. With the help of longitude and latitude the victim Location sent to the registered contact. The user traces the location and passes it to the registered Contact.

Class Diagram

Contacts
+ name: String + phone no: int

1..*   1

Register
+ phone no : int
+ register ( )

0 1

Friends_list
+ name : String + phone no: int
+ get location ( ) : return + get SMS ( ) : return

Database
+ Operation ( ) : return

1..*

0..1

1..*   1

0..1

1..*

0..1

1..*

Change_contact
+ name: String + phone no: int
+ register ( )

0..1   1

Authentication
+ message: String
+ get Response()

1   1

Location
+ get latitude() + get longitude()

1..*

| SMS |
| --- |
| + message: String |
| + get message() |

Activity Diagram

Monitoring Module

Activity diagram is another important diagram in UML to describe the dynamic aspects of the system. In this install the app and if yes register the contacts. If else no monitoring the module. Later press the panic button if the mobile data is on fetch the current location. If not turn on the GPS and mobile data. Later send the SMS and location.

Tracing Module
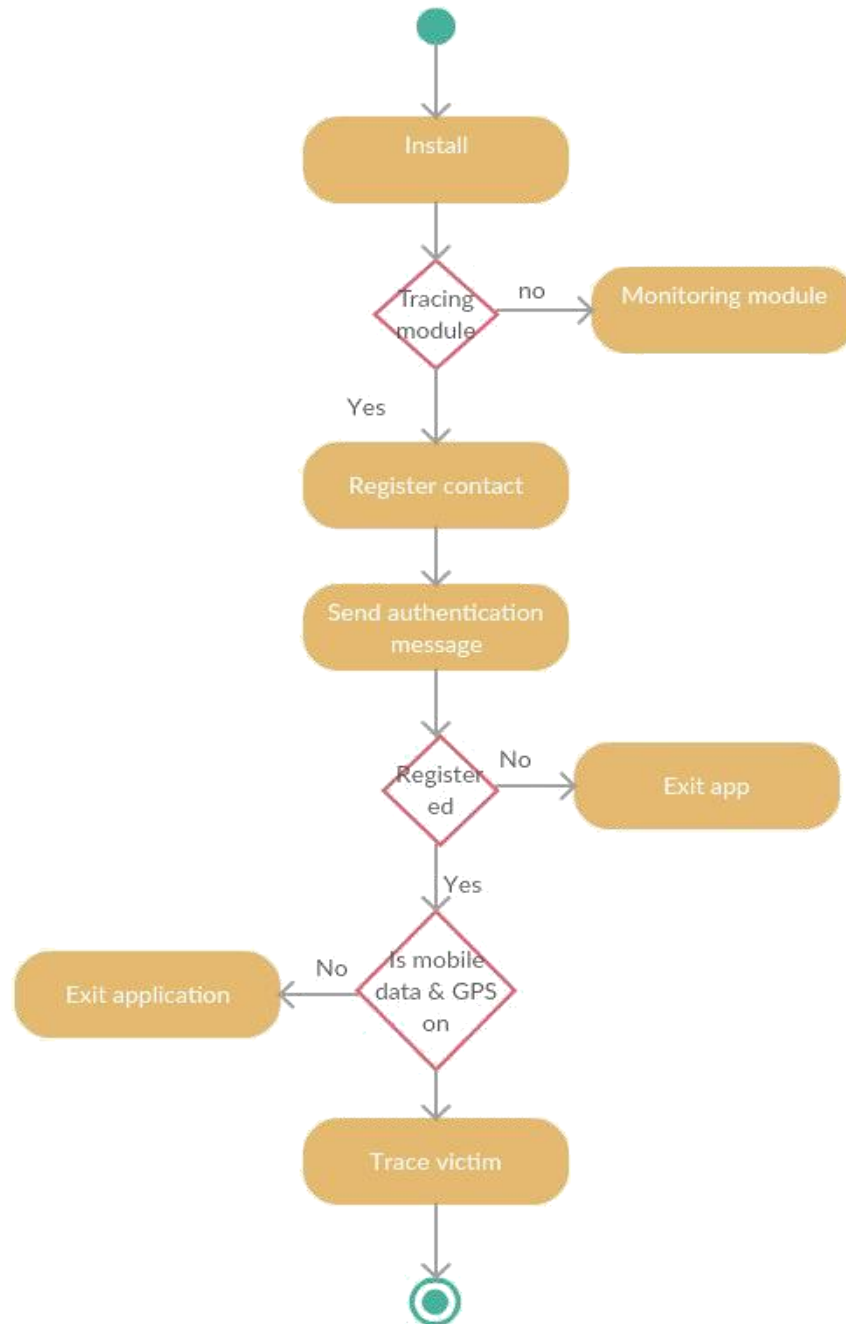
Install the app and if yes trace the module and register the contacts. If not monitoring the module. Then send the authentication message if registered .if it is not registered exit the app. Then turn on the mobile data and GPS no exit the application. If data is on trace the victim.